



A STEP-BY-STEP GUIDE TO

Literature Searching with GenAI

This information literacy session will be using a combination of library resources and GenAI. Please complete this worksheet throughout the information literacy session. We will pause at each step to provide you with time to work on each section.

This guide serves as a roadmap in the literature search process, helping you move from a broad research idea to finding relevant sources with the help of GenAI for your assignments. By following these steps, you will learn to navigate the literature search process with confidence and gather high quality sources for your work!

To access AI tools:

Copilot via UofT: <https://www.microsoft365.com/chat/?auth=2>

UofT has access to the enterprise edition of Microsoft Copilot, which conforms to the University's privacy and data protection policies.

STEP 1

Pick a research topic and create a research question with Copilot

Using the **Task + Instructions + Context** framework (order does not matter), create a prompt to help you narrow down on a topic.

Ex. I am a third year biology student conducting scholarly research on plant water relations (Context). I need to narrow down my topic (Task). Pretend that you are an expert in plant physiology and are aware of the latest trends in the field (Bonus: Persona). Provide me with 5 ways to narrow down on this topic (Instructions).

Prompt Used:	
Research topic chosen:	

Now, using the **Chain of Thought (CoT)** process, create another prompt to generate a research question. Please use the **Task + Instructions + Context** framework (order does not matter), to help you get started.

Prompt Used:	
My research question:	

STEP 2

Identify main keywords from research question using Copilot

What are the key searchable concepts in your research question? Try to identify the main keywords on your own. Then, use Copilot and the **Task + Instructions + Context** framework to help you identify the main keywords.

You do not have to use all 4 boxes.

Ex. *I have my research topic on plant physiological responses in drought tolerance specifically focusing on root architecture in wheat plants (Context). I need to identify the main keywords in my research question to find scholarly sources for my research (Task). Can you help me identify*

the main keywords for my research question (Instructions): "What is the relationship between root branching patterns and the ability of wheat plants to maintain physiological functions under drought conditions?"

Keyword 1	Keyword 2	Keyword 3	Keyword 4
My own keyword:	My own keyword:	My own keyword:	My own keyword:
AI generated keyword:	AI generated keyword:	AI generated keyword:	AI generated keyword:

Quick Reflection: What was one difference in the keywords picked by AI versus yourself?

STEP 3

Use Copilot to brainstorm for synonyms

What are some synonyms (related terms) for each keyword? Try to identify as many synonyms as possible for each keyword (you do not have to use all of them for your search string, it's good to have options!).

First, try to identify synonyms by yourself. Then, using the **Task + Instructions + Context** framework (order does not matter), create a prompt to help you brainstorm synonyms.

Ex. **I have my main keywords for my research question** (Context). **I need help in brainstorming synonyms for my keywords** (Task). **Can you help me identify 5 synonyms for each of my keywords?** (Instructions) My keywords are: root branching patterns, wheat plants, physiological functions, and drought conditions.

Prompt Used:

You do not have to use all the keywords generated by your AI tool. Select the best ones to use for your search string.

Keyword 1	Keyword 2	Keyword 3	Keyword 4
Main keyword:	Main keyword:	Main keyword:	Main keyword:
OR	OR	OR	OR
My synonym:	My synonym:	My synonym:	My synonym:
OR	OR	OR	OR
AI generated synonym:	AI generated synonym:	AI generated synonym:	AI generated synonym:
OR	OR	OR	OR
AI generated synonym:	AI generated synonym:	AI generated synonym:	AI generated synonym:

STEP 4

Create your search strategy

Make sure to use Boolean Logic in your searches!

- **OR:** wheat OR Triticum
 - returns articles that mention the keywords wheat, Triticum, or both

- **OR** broadens and increases results
- **AND:** “root branching patterns” AND Triticum
 - returns only articles that mention BOTH root branching patterns AND Triticum
 - **AND** narrows and decreases results

Using the table below, combine your main keywords and synonyms to create your search string. You do not have to use all the synonyms from the table above. This search string will be used in databases when you start to conduct your searches.

Keyword 1	AND	Keyword 2	AND	Keyword 3	AND	Keyword 4
OR		OR		OR		OR
OR		OR		OR		OR
OR		OR		OR		OR

STEP 5

Select a database(s)

Which databases* will you use to conduct your search (identify at least 2) and explain why.

**Note: AI tools like Copilot, Claude, and ChatGPT are not databases because they are not connected to the Internet (like google scholar) or to a collection of articles. Please select databases found in the [Biology subject guide](#) or from the list below.*

Database Name	Rationale
Ex. Scopus	Ex. Science focused database

List of potential databases to choose from:

- **Web of Science:** Citation information and research impact factors for multi-disciplinary journal articles, conference papers, books, and more.
- **Scopus:** Abstract and citation information for peer-reviewed scientific research, including journals, books, and conference papers.
- **Jstor:** Interdisciplinary search engine of academic journals, books, and other materials across the humanities, social sciences, and sciences (also includes Global Plants).
- **GeoBase:** Database for physical and human geography, earth and environmental sciences, ecology, and related disciplines, focusing on the human and social impacts on both.

STEP 6

Conduct your search and examine your results

Did you feel your initial search results were useful? Why or why not?

Did you modify your search to make it more effective? If so, what did you change (eg. keywords, filters, Boolean operators, etc.). How did this affect your results?

How did you know whether your initial results were useful or not?

STEP 7

Identify peer-reviewed articles

Select 2 articles that are peer-reviewed.

Tip: Use Ulrichsweb to check if the article is from a peer-reviewed journal. Instructions to use Ulrichsweb can be found here: https://guides.library.utoronto.ca/ld.php?content_id=35350935

Journal Name	Is it peer-reviewed?
Ex. Journal of Soil and Water Conservation	Yes

STEP 8

Cite relevant articles

Using the **Task + Instructions + Context** framework (order does not matter), create a prompt to help cite the 2 articles in New Phytologist style (<https://nph.onlinelibrary.wiley.com/hub/journal/14698137/about/author-guidelines>).

Ex. *I have found two scholarly peer-reviewed articles that I will use for my research paper (Context). I need to cite these in New Phytologist style (Task). You are a citation specialist who is an expert in using New Phytologist style (Bonus: Persona). Help me cite the following two articles (Instructions): (provide citations)*

Prompt Used:

List 2 citations of articles you can use:

AI generated citations:

Refer to the New Phytologist Style manual and make corrections to the AI generated citations.

Quick Reflection: How accurate were the citations generated with AI compared to doing this manually?